IDC Frontier optimizes data center services with a fabric backbone approach

IDC Frontier optimized their cloud services to address growing demand by upgrading their outdated backbone with modern network switching equipment. They chose the Alcatel-Lucent OmniSwitch® 6900 for its scalability and fast response time to provision services for their new customers.

IDC Frontier, a 100%-owned subsidiary of Yahoo Japan Corporation, has nine data centers located throughout Japan with headquarters in Tokyo and a sales office in Osaka. IDC Frontier provides their customers with data center and cloud computing services. Recently, they expanded their cloud services with data analysis.

IDC Frontier, although they take advantage of Yahoo Japan Group’s strengths, has operated their highly available backbone network that interconnects their nine data centers on their own. Included in those nine is a large data center in Shirakawa City, Fukushima Prefecture and another in Kitakyushu City, Fukuoka Prefecture. Their backbone network interconnects their data centers with major domestic internet exchanges (IXs) and internet service providers (ISPs) as well.
"At first we felt unsure if the Alcatel-Lucent Enterprise products we chose were right because it was new technology for us and it also had to cover a geographically wide area of over 1000 km between Kitakyushu City and Shirakawa City. However, that concern evaporated when we realized the competitive edge of SPB technology and the stability of the OmniSwitch 6900 after performing a field test in our actual network."

Mr. Tokuda, Network Group, Platform Engineering Department, Customer Service Division of IDC Frontier

ISSUES AND CHALLENGES
IDC Frontier faced many challenges when it came to their network of data centers and cloud services. They wanted an innovative and scalable solution that stayed current without spending additional money. They also faced high costs and large delays in bringing up services when deploying and provisioning the backbone equipment. Not to mention, they were always worried about their backbone failing since it lacked adequate redundancy, which could cause long interruptions to the services they provide their customers.

IDC Frontier’s corporate customers include financial businesses, enterprises, as well as content providers who use the services for commercial transactions, entertainment, gaming and video streaming. These types of customers create high demand for cloud computing services and expect great QoS levels, putting ever increasing pressure on services expected.

Old network not reliable nor scalable
In brief, IDC Frontier’s backbone could not keep up with demand so they asked vendors to propose solutions that matched the service levels IDC Frontier required. A test was created to check the performance between their data centers along with various service level criteria using the various vendors’ solutions. After reviewing the results, they chose the Alcatel-Lucent Enterprise solution.

SPB delivers resiliency and ensures SLAs
IDC Frontier was aware of the company’s reputation as an experienced and established vendor of network infrastructure equipment. However, IDC Frontier decided to try out the SPB technology at their own field sites where comparative tests were performed.

Although SPB is considered to be a technology that can enable a wide area network (WAN) across geographically spread out data centers, such as
Kitakyushu City and Shirakawa City, there were few actual installations at the time. Therefore, a field test between these remote data centers was critical for making a decision.

The field test proved that instead of upgrading the existing equipment, using OmniSwitch network equipment would have a more competitive advantage in terms of cost and would bring the services to the required levels.

The field test showed that the OmniSwitch and its technology met the redundancy and resiliency requirements of IDC Frontier. This was readily apparent from a fault-tolerant test that showed fast rerouting of traffic from a failing connection to a standby connection. Fast connection recovery to sustain customer service levels was the most important factor in their decision.

**Simple deployment and provisioning cut operational costs**
The next factor was deployment and provisioning. Tests revealed it was simple to deploy and offered a dramatic decrease in time needed to provision services. That would lead to a big reduction of costs of operations.

IDC Frontier was also pleased that the OmniSwitch used in the test were compact and easily fit their available (and expensive) rack space.

After selecting an Alcatel-Lucent Enterprise solution, IDC Frontier in November 2013 deployed a number of Alcatel-Lucent OmniSwitch 6900s (“OS6900”) to update their backbone network supporting high availability, easy operations and fast service provisioning. The equipment has provided a secure and reliable network system without any problems or failures since its deployment.

**THE SOLUTION AND RELATED BENEFITS**
In the three-plus years since the OS6900s were installed, benefits have grown in every aspect of this project.

According to IDC Frontier, it was very easy to start using the new backbone after the installation. In comparison to the previous backbone equipment, the number of parameters needed to bring up a switch has been reduced from several dozens to just a few. That made deployment much easier, faster and above all, less prone to mistakes.

The OmniSwitch with its SPB made it much easier to design, provision and install thereby reducing the amount of time. The overall result is a faster delivery of IDC Frontier services. In addition, the technology allows multiple routes between data centers across the backbone with automatic selection of the shortest available path enabling reliable services to IDC Frontier’s customers.

The OmniSwitch model chosen combines high-port density with a compact size eliminating the large rack space requirement of the previous backbone switches. Lastly, the equipment has not had a terrible failure in the three years since its installation, so its stability is highly rated as well.

Regarding daily operation, Mr. Sakuma, from the Network Group, Platform Engineering Department, Customer Service Division of IDC Frontier

"The OmniSwitch 6900 helped us overcome the geographic barrier created by the long distance between the two data centers. We benefited greatly from the OmniSwitch 6900 features."

Mr. Tokuda, Network Group, Platform Engineering Department, Customer Service Division of IDC Frontier

"The time it takes to accomplish a task has been reduced, and there are fewer checkpoints that we have to pay attention to. This has made our work much easier."

The company has standardized and documented its commands, which results in fewer human errors. One of their company requirements is that the equipment is "simple to operate, which our experience has shown to be true."

Mr. Tokuda continued enthusiastically, "It’s possible that operations can be automated, so we’d like to work on that if given the chance."

Mr. Tokuda continued, "IDC Frontier would like to develop and deploy its cloud business in the future. We will also continue to focus on improving services and enhancing the network to achieve this goal. Network-wise, we would like to develop the current network by deploying enhancements across the data centers. This would also help to improve service to..."
“Operation of the OmniSwitch 6900 in an actual wide area network revealed the potential of SPB, so we talked with Alcatel-Lucent Enterprise about using it for other purposes, such as intra data center use for co-location service.”

Mr. Tokuda, Network Group, Platform Engineering Department, Customer Service Division of IDC Frontier

our customers. Moreover, we would like to improve the data center content along with enhancements of the server, storage and network infrastructure. Traditionally, a data center served as a server center, but they have started to be used as a centralized data framework. This means that the data should be collected and properly stored at a data center.”

Mr. Tokuda ended with, “SPB is safe to use now and in the future. We currently offer a product with high-port density, so we’d like to use it to further expand the network. Plus, we’d like to repay our customers by enhancing the features further to make them and IDC Frontier happy.”

IDC Frontier, a 100%-owned subsidiary of Yahoo Japan Corporation, has nine data centers located throughout Japan providing customers with standard data center services as well as a cloud computing service.

Yahoo Japan is one of the biggest internet content providers in Japan. As IDCF belongs to Yahoo Japan Group, they can use Yahoo Japan’s resources in regard to internet content. In addition to their own infrastructure as a cloud service provider, they have the ability to provide content, which together is their core strength.